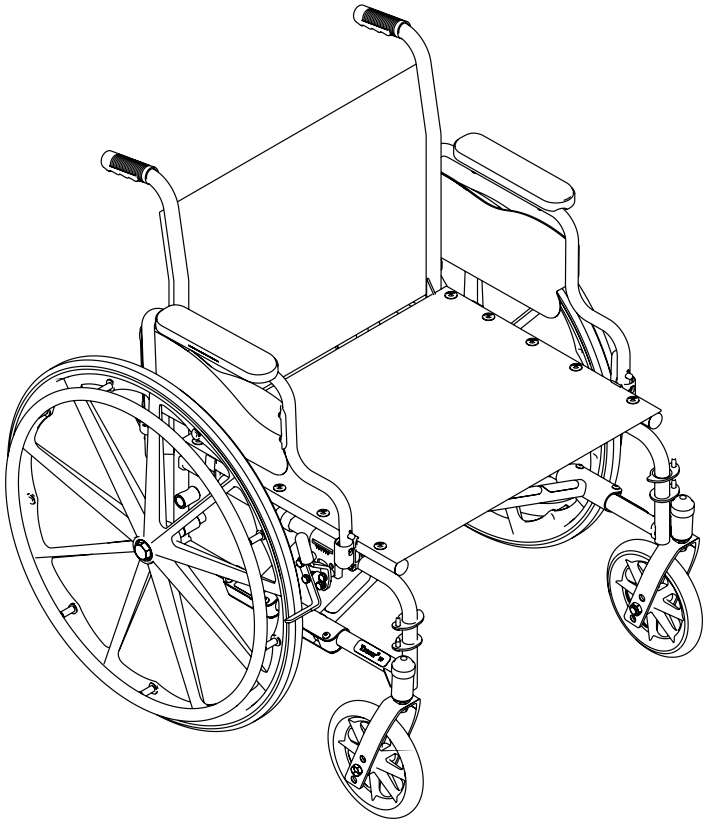
## Owner's Operator and Maintenance Manual

# *Tracer® IV*

## *Heavy Duty/Extra Wide*



**DEALER:** This manual MUST be given to the user of the product.

**USER:** BEFORE using this product, read this manual and save for future reference.

**For more information regarding Invacare products, parts, and services, please visit www.invacare.com**

INVACARE®

*Yes, you can.®*

## ⚠ WARNING

**A QUALIFIED TECHNICIAN MUST PERFORM THE INITIAL SET UP OF THIS WHEELCHAIR. ALSO, A QUALIFIED TECHNICIAN MUST PERFORM ALL PROCEDURES SPECIFICALLY INDICATED IN THE MANUAL.**

**DO NOT USE THIS PRODUCT OR ANY AVAILABLE OPTIONAL EQUIPMENT WITHOUT FIRST COMPLETELY READING AND UNDERSTANDING THESE INSTRUCTIONS AND ANY ADDITIONAL INSTRUCTIONAL MATERIAL SUCH AS OWNER'S MANUALS, SERVICE MANUALS OR INSTRUCTION SHEETS SUPPLIED WITH THIS PRODUCT OR OPTIONAL EQUIPMENT. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS OR INSTRUCTIONS, CONTACT A HEALTHCARE PROFESSIONAL, DEALER OR TECHNICAL PERSONNEL BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE, INJURY OR DAMAGE MAY OCCUR.**

## ⚠ ACCESSORIES WARNING

**INVACARE PRODUCTS ARE SPECIFICALLY DESIGNED AND MANUFACTURED FOR USE IN CONJUNCTION WITH INVACARE ACCESSORIES. ACCESSORIES DESIGNED BY OTHER MANUFACTURERS HAVE NOT BEEN TESTED BY INVACARE AND ARE NOT RECOMMENDED FOR USE WITH INVACARE PRODUCTS.**

*NOTE: Updated versions of this manual are available on www.invacare.com.*

# TABLE OF CONTENTS

**REGISTER YOUR PRODUCT ..... 5**

**SPECIAL NOTES ..... 6**

**LABEL LOCATION ..... 7**

**TYPICAL PRODUCT PARAMETERS ..... 8**

**SECTION 1—GENERAL GUIDELINES ..... 9**

Stability - All Models ..... 9
Weight Training ..... 9
Weight Limitation ..... 9
Anti-Tippers ..... 10
Operating Information ..... 10

**SECTION 2—SAFETY/HANDLING OF WHEELCHAIRS ..... 12**

Safety/Handling of Wheelchairs ..... 12
Stability and Balance ..... 12
Coping With Everyday Obstacles ..... 13
A Note to Wheelchair Assistants ..... 13
Reaching, Leaning and Bending Forward ..... 14
Reaching and Leaning Backwards ..... 14
Tipping ..... 15
Method 1 - Wheelchair With Step Tubes ..... 15
Method 2 - Wheelchair Without Step Tubes ..... 15
Stairways ..... 16
Escalators ..... 17
Transferring To and From Other Seats ..... 18
Unfolding and Folding Wheelchair ..... 18
Unfolding ..... 19
Folding Wheelchair ..... 19

**SECTION 3—SAFETY INSPECTION/TROUBLESHOOTING ..... 21**

Safety Inspection Checklist ..... 21
Inspect/Adjust Initially ..... 21
Inspect/Adjust Weekly ..... 22
Inspect/Adjust Monthly ..... 22
Inspect/Adjust Periodically ..... 23
Troubleshooting ..... 23
Maintenance ..... 24
Maintenance Safety Precautions ..... 24
Suggested Maintenance Procedures ..... 24

# TABLE OF CONTENTS

**SECTION 4—FRONT RIGGINGS ..... 26**

Installing/Removing Front Riggings ..... 26
Installing ..... 26
Removing ..... 26
Adjusting Footplate Height ..... 27
Spring Button Height ..... 27
Bolt-In-Place Height ..... 27
Raising/Lowering Elevating Legrest Assembly ..... 28
Installing H-Strap/Calf Strap ..... 29
Replacing Heel Loop ..... 30

**SECTION 5—ARMS ..... 32**

Adjusting Armrest Height ..... 32
Removing/Installing Armrests ..... 32
Removing Armrest ..... 33
Installing Armrest ..... 33

**SECTION 6—SEAT AND BACK ..... 34**

Replacing Back Upholstery ..... 34
Replacing Seat Upholstery ..... 34
Adjusting the Seat Width ..... 35

**SECTION 7—REAR WHEELS ..... 37**

Removing/Installing Rear Wheels ..... 37
Replacing Rear Wheel Handrim ..... 38
Replacing/Repairing Rear Wheel Tire ..... 38

**SECTION 8—FRONT CASTERS ..... 39**

Installing/Replacing Front Casters and Forks ..... 39
Adjusting Forks ..... 40
Replacing Front Casters ..... 40
Replacing/Repairing Front Caster Tire/Tube ..... 41

**SECTION 9—ANTI-TIPPERS/WHEEL LOCKS ..... 42**

Installing/Adjusting Anti-tippers ..... 42
Installing Anti-Tippers ..... 42
Adjusting the Anti-Tippers ..... 43
Using/Adjusting Patient Operated Wheel Locks ..... 44
Using Patient Operated Wheel Locks ..... 44
Adjusting Patient Operated Wheel Locks ..... 45
Installing Wheel Lock Shoe Extensions ..... 46

# TABLE OF CONTENTS

**SECTION 10—SEAT TO FLOOR HEIGHT ..... 47**

Changing Seat-to-Floor Height.....47

**SECTION 11—OPTIONS ..... 49**

Installing Carrying Pocket.....49

Installing Crutch and Cane Carrier.....50

Installing the Seat Positioning Strap.....51

**LIMITED WARRANTY ..... 52**

# REGISTER YOUR PRODUCT

The benefits of registering include:

1. Safeguarding your investment.
2. Ensuring long-term maintenance and servicing of your product.
3. Receiving updates with product information, maintenance tips and industry news.

## Register ONLINE at warranty.invacare.com

Please have your model number and purchase date available to complete your registration.

Any registration information you submit will only be used by Invacare Corporation and protected as required by applicable laws and regulations.

# SPECIAL NOTES

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. Refer to the following table for definitions of the signal words.

| SIGNAL WORD | MEANING |
|---|---|
| DANGER | Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
| WARNING | Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
| CAUTION | Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage. |

## NOTICE

**THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.**

**WHEELCHAIR USER**

**As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection.**

**WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT RESTRAINTS**

**Wheelchair users should NOT be transported in vehicles of any kind while in wheelchairs. As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type.**

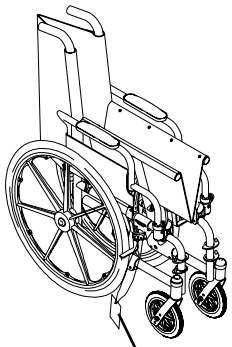
**It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation systems.**

**SEAT POSITIONING STRAP**

**ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced IMMEDIATELY.**

**With regards to seat/chest positioning straps - it is the obligation of the DME dealer, therapists and other healthcare professionals to determine if a seat/chest positioning strap is required to ensure the safe operation of this equipment by the user. Serious injury can occur in the event of a fall from a wheelchair.**

# LABEL LOCATION

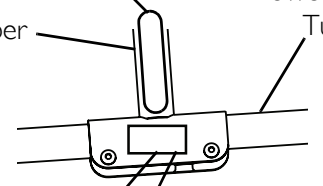


NO WHEELCHAIR HAS BEEN APPROVED FOR USE AS A SEATING SURFACE WITHIN A MOTOR VEHICLE. THIS LABEL IS FOR INFORMATIONAL PURPOSES ONLY. LIABILITY ISSUES WERE NOT CONSIDERED IN THE ATTACHMENT OF THIS LABEL.

AUCUN FAUTEUIL ROULANT N'A ÉTÉ APPROUVÉ POUR ÊTRE UTILISÉ COMME SIÈGE À L'INTÉRIEUR D'UN VÉHICULE MOTORISÉ. CETTE ÉTIQUETTE NE PEUT ÊTRE UTILISÉE QU'À TITRE D'INFORMATION ET N'A PAS ÉTÉ AFFICHÉE ICI POUR DES RAISONS DE RESPONSABILITÉ LEGALE.

Crossmember

Lower Frame Tube



**IMPORTANT NOTICE**

The wheel locks on this wheelchair have been pre-set at the factory to comply with the Veterans Administration functional Standard 8320.01 of the Federal Register, paragraph 3.2.4.5.3. If these wheel locks do not meet your needs, follow instructions below.

**⚠ CAUTION**

Any wheel lock adjustments should embed wheel lock shoe at least 1/8" into tire when locked (3/16" on pneumatic tires).

**INSTRUCTIONS FOR WHEEL LOCK ADJUSTMENTS**

1. Loosen wheel lock mounting fastener, which runs through mounting bracket and frame.
2. Slide clamp toward rear wheel until wheel lock shoe is embedded into tire material at least 1/8" when handle is engaged to the lock position (3/16" for pneumatic tires).
3. Tighten mounting fastener to secure mounting bracket in desired location and recheck lock shoe embedding.
4. Inspect for correct locking action BEFORE actual use.

00078X021-0394

**Wheelchairs with Standard Wheel Package**

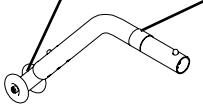
**WEIGHT CAPACITY**
**350 LBS. (159 kgs.)**
**REFER TO OWNER'S MANUAL**
P/N 1111017

**Wheelchairs with Heavy Duty Wheel Package**

**WEIGHT CAPACITY**
**450 LBS. (205 kgs.)**
**REFER TO OWNER'S MANUAL**
P/N 1111018

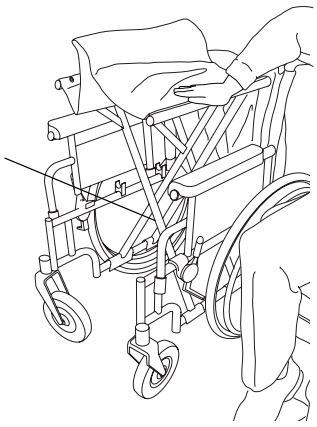
*NOTE: On all adjustable anti-tippers*

**⚠ WARNING**
Refer to Owner's Manual for proper anti-tipper setting. 1085379



**⚠ WARNING**
DO NOT OPERATE WITHOUT THE ANTI-TIP TUBES INSTALLED.
REV. 5/98 P/N 60106X144

Serial Number Label is located on the cross brace on the left side of the chair



# TYPICAL PRODUCT PARAMETERS

| TRACER IV | |
|---|---|
| **OVERALL WIDTH** | 26¼ to 32¼ inches |
| **OVERALL DEPTH (WITHOUT RIGGINGS)** | 33½ inches |
| **SEAT WIDTH** | 18, 20, 22 or 24 inches |
| **SEAT DEPTH** | 18 and 20 inches |
| **SEAT-TO-FLOOR**** | 19½ inches (Adult), 17½ inches (Hemi) |
| **BACK STYLE** | Fixed |
| **BACK HEIGHT** | 16 inches |
| **ARM STYLES** | Fixed or Adjustable Height; Desk or Full Length; Removable |
| **FRONT RIGGINGS** | Swingaway Removable Footrests, Elevating Legrests, and Articulating Elevating Legrests |
| **REAR AXLE** | Permanent |
| **REAR WHEELS** | 24*-inch Composite Corded Urethane<br>24-inch Pneumatic-Flat Free Insert (Heavy Duty Wheel Option) |
| **HANDRIMS** | Chrome Plated Steel, Black Painted Steel |
| **WHEEL LOCKS** | Push to Lock (Adult), Pull to Lock (Hemi) |
| **CASTER SIZE** | 8x1¼ inch Urethane<br>8x1¾ inch Semi Pneumatic |
| **UPHOLSTERY** | Vinyl: Midnight Blue, Dove Grey, Ruby, Black, Camel<br>Nylon: Black |
| **WEIGHT*** (APPROX.)** | 42 pounds |
| **SHIPPING WEIGHT*** (APPROX.)** | 52 pounds |
| **WEIGHT LIMIT** | 250 lbs (114 kg) |

**NOTE: Heights can vary ¼ inch due to wheel options, tire wear, and manufacturing tolerances.*

***NOTE: These options are standard for this model.*

****NOTE: Weights based on 22-inch wide wheelchair without front riggings. All weights are approximate and will vary depending on how the wheelchair is equipped.*

# SECTION 1—GENERAL GUIDELINES

**⚠ WARNING**

**SECTION 1 - GENERAL GUIDELINES contains important information for the safe operation and use of this product.**

## Stability - All Models

The seat depth, size/position of the front casters, size/position of the rear wheels, anti-tipper model, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the seven may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

| *NOTE: When changes to the left hand column occur, follow across the chart and refer to the procedure that is checked (✓) to maintain the proper stability, safety and handling of the wheelchair.* | CASTER SIZE | CASTER POSITION | WHEEL SIZE | WHEEL POSITION | ANTI-TIPPERS | USER CONDITION |
|---|---|---|---|---|---|---|
| **CASTER SIZE** | • | X | X | X | X | X |
| **CASTER POSITION** | X | • | X | X | X | X |
| **WHEEL SIZE** | X | X | • | X | X | X |
| **ANTI-TIPPERS** | X | X | X | • | X | X |
| **USER CONDITION** | X | X | X | X | X | • |

The various seat-to-floor heights require specific settings depending on rear wheel size, rear wheel position, front caster size/position and desired seat-to-floor angle. These adjustments MUST be performed by a qualified technician.

## Weight Training

Invacare does not recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have not been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, Invacare shall not be liable for bodily injury or damage to the wheelchair and the warranty is void.

## Weight Limitation

The Tracer IV wheelchair with standard wheel package has a weight limitation of 350 lbs (159 kg). The Tracer IV wheelchair with the heavy duty wheel package has a weight limitation of 450 lbs (205 kg.).

# Anti-Tippers

Anti-tippers are specific to the different seat-to-floor angles and/or seat-to-floor heights. Refer to the charts in Installing/Adjusting Anti-tippers on page 42 for correct usage and adjustment. If these requirements cannot be achieved, DO NOT use the wheelchair. Contact a qualified technician. If changing the seat-to-floor height with or without a change to seat-to-floor angle, the correct anti-tippers MUST be used to maintain a 1½ to 2-inch ground clearance.

Anti-tippers MUST be fully engaged and release buttons fully protruding out of adjustment holes.

Anti-tippers MUST be attached at all times. Inasmuch as the anti-tippers are an option on this wheelchair (you may order with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as an additional safeguard for the wheelchair user.

ALWAYS use anti-tippers. When outdoors on wet, soft ground or on gravel surfaces, anti tippers may not provide the same level of protection against tipover. Extra caution MUST be observed when traversing such surfaces.

# Operating Information

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Unless otherwise noted, all service and adjustment should be performed while the wheelchair is unoccupied.

To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

When cleaning rear cane or hand grip areas use only a clean towel lightly dampened with cool water. Verify that grips are dry prior to use. Use of soap or ammonia based cleaning solutions will result in the hand grips sliding off the cane assembly. Failure to observe this warning may result in injury to the user or bystanders.

If the wheelchair is exposed to extreme temperature (above 100°F or below 32°F), high humidity and/or becomes wet, prior to use, ensure that the handgrips DO NOT twist on the handle. Otherwise, damage or injury may occur.

Avoid storing or using the wheelchair near open flame or combustible products. Serious injury or damage to property may result.

ALWAYS keep hands and fingers clear of moving parts to avoid injury.

DO NOT traverse, climb or go down ramps or slopes greater than 9°.

DO NOT attempt to move up or down an incline with a water, ice or oil film.

NEVER leave an unoccupied wheelchair on an incline.

DO NOT operate on roads, streets or highways.

DO NOT attempt to ride over curbs or obstacles. Doing so may cause your wheelchair to tip over and cause bodily harm to you or damage to the wheelchair.

DO NOT attempt to reach objects if you have to move forward in the seat.

DO NOT attempt to reach objects if you have to pick them up from the floor by reaching down between your knees.

DO NOT lean over the top of the back upholstery to reach objects behind you, as this may cause the wheelchair to tip over.

DO NOT shift your weight or sitting position toward direction you are reaching as the wheelchair may tip over.

DO NOT attempt to stop a moving wheelchair with wheel locks. Wheel locks are not brakes.

DO NOT tilt the wheelchair without assistance.

DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. When transferring to and from the wheelchair, ALWAYS engage both wheel locks.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

DO NOT stand on the frame of the wheelchair.

DO NOT stand on the footplates. When getting in or out of the wheelchair, make sure that the footplates are in the upward position or swing the footrests towards the outside of the wheelchair.

ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced IMMEDIATELY.

ALWAYS use the handrims for self-propulsion. Inasmuch as the handrims are an option on this wheelchair (you may order with or without the handrims), Invacare strongly recommends ordering the handrims as an additional safeguard for the wheelchair user.

# SECTION 2—SAFETY/HANDLING OF WHEELCHAIRS

## Safety/Handling of Wheelchairs

Safety and handling of the wheelchair require the close attention of the wheelchair user as well as the assistant. This manual points out the most common procedures and techniques involved in the safe operation and maintenance of the wheelchair. It is important to practice and master these safe techniques until you are comfortable in maneuvering around the frequently encountered architectural barriers.

Use this information only as a basic guide. The techniques that are discussed on the following pages have been used successfully by many.

Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. Invacare recognizes and encourages each individual to try what works best for him/her in overcoming architectural obstacles that they may encounter. However, all warnings and cautions given in this manual MUST be heeded. Techniques in this manual are a starting point for the new wheelchair user and assistant with safety as the most important consideration for all.

## Stability and Balance

**⚠ WARNING**

**ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced IMMEDIATELY.**

**⚠ WARNING**

**Be aware that carrying heavy objects on your lap while occupying the wheelchair may adversely affect the stability of the wheelchair, resulting in serious bodily injury to the user, damage to the wheelchair and surrounding property.**

**⚠ WARNING**

**This wheelchair has been designed to accommodate one individual. If more than one individual occupies the wheelchair this may adversely affect the stability of the wheelchair, resulting in serious bodily injury to the user and passenger and damage to the wheelchair and surrounding property.**

To assure stability and proper operation of your wheelchair, you MUST maintain proper balance at all times. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you DO NOT move beyond the center of gravity.

Virtually all activities which involve movement in the wheelchair have an effect on the center of gravity. Invacare recommends using seat/chest positioning straps for additional safety while involved in activities that shift your weight.

DO NOT lean forward out of the wheelchair any further than the length of the armrests. Make sure the casters are pointing in the forward position whenever you lean forward. This can be achieved by advancing the wheelchair and then reversing it in a straight line.

## Coping With Everyday Obstacles

Coping with the irritation of everyday obstacles can be alleviated somewhat by learning how to manage your wheelchair. Keep in mind your center of gravity to maintain stability and balance.

## A Note to Wheelchair Assistants

When assistance to the wheelchair user is required, remember to use good body mechanics. Keep your back straight and bend your knees whenever tipping the wheelchair or traversing curbs, or other impediments.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

If the wheelchair is exposed to extreme temperature (above 100°F or below 32°F), high humidity and/or becomes wet, prior to use, ensure handgrips DO NOT twist on the wheelchair's handle - otherwise damage or injury may occur.

When learning a new assistance technique, have an experienced assistant help you before attempting it alone.

**⚠ WARNING**

**DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.**

**The seat depth, back height/angle, seat angle, size/position of the front casters, size/position of the rear wheels, anti-tipper model, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the ten may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.**

Many activities require the wheelchair owner to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, the center of gravity, and the weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

Proper positioning is essential for your safety. When reaching, leaning, or bending forward, it is important to use the front casters as a tool to maintain stability and balance.

## Reaching, Leaning and Bending Forward

**⚠ WARNING**

**DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.**

*NOTE: For this procedure, refer to FIGURE 2.1.*

Position the front casters so that they are extended as far forward as possible and engage wheel locks.

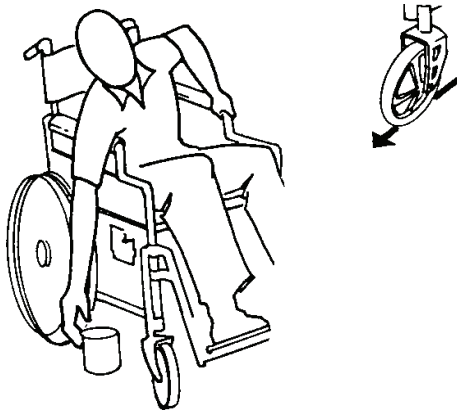


**FIGURE 2.1** Reaching, Leaning and Bending Forward

## Reaching and Leaning Backwards

**⚠ WARNING**

**DO NOT lean over the top of the back upholstery to reach objects behind you, as this may cause the wheelchair to tip over.**

*NOTE: For this procedure, refer to FIGURE 2.2.*

Position wheelchair as close as possible to the desired object. Point front casters forward to create the longest possible wheelbase. Reach back only as far as your arm will extend without changing your sitting position.

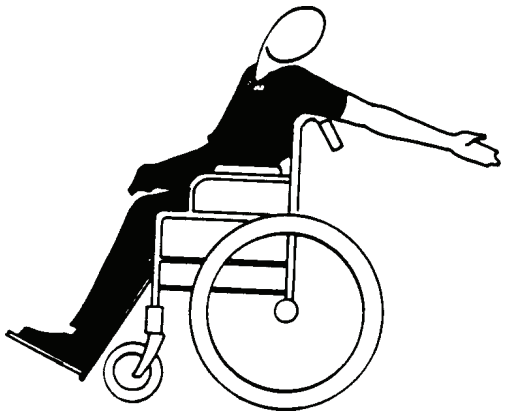


**FIGURE 2.2** Reaching and Leaning Backwards

# Tipping

**⚠ WARNING**

**DO NOT tip the wheelchair without assistance.**

When tipping the wheelchair, an assistant should grasp the back of the wheelchair on a non-removable (non-detachable) part. Inform the wheelchair occupant before tipping the wheelchair and remind him/her to lean back. Be sure the occupant's feet and hands are clear of all wheels and/or pinch points.

After mastering the techniques of tipping the wheelchair, use one of the following methods to tackle curbs, short stairs, etc.

DO NOT allow the user to leave the wheelchair while the seat is tilted. ALWAYS return the seat to upright position when transferring the user in or out of the wheelchair.

## Method 1 - Wheelchair With Step Tubes

*NOTE: For this procedure, refer to FIGURE 2.3.*

Place foot on the step tube and begin to tilt the wheelchair toward you. Apply a continuous downward motion until the balance point is achieved and the front casters clear the curb. At this point, the assistant will feel a difference in the weight distribution.

**⚠ WARNING**

**When lowering the front casters of the wheelchair, DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.**

Roll the wheelchair forward and slowly lower the front of the wheelchair in one continuous movement onto the sidewalk. Push the wheelchair forward until the rear wheels roll up and over the curb.

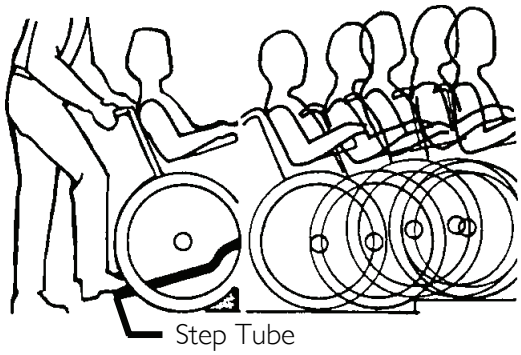



**FIGURE 2.3** Method 1 - Wheelchair With Step Tubes

## Method 2 - Wheelchair Without Step Tubes

**⚠ WARNING**

**ALWAYS check hand grips for looseness before using the wheelchair. If loose and/or worn, replace IMMEDIATELY.**

*NOTE: For this procedure, refer to FIGURE 2.4.*

This method requires two assistants. The second assistant should be positioned at the front of the wheelchair lifting upward on a non-removable (non-detachable) part of the wheelchair frame when lifting the wheelchair and stabilizing the wheelchair when the wheelchair is being lowered to the ground.

The first assistant should stand on the sidewalk and turn the wheelchair so that the rear wheels are against the curb. Turn the anti-tippers so the anti-tip wheels are pointing up. The wheelchair should be tilted back to the balance point and, in one continuous upward movement, the rear wheels should be pulled up and over the curb. DO NOT return the front casters to the ground until the wheelchair has been pulled backward far enough for the front casters to clear the edge of the curb.

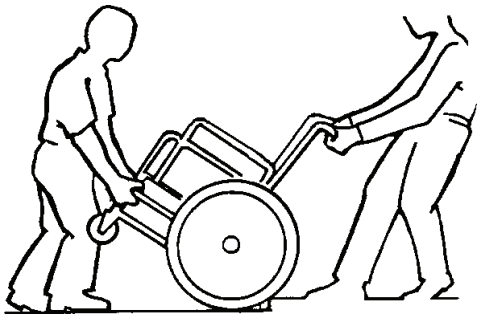


**FIGURE 2.4** Method 2 - Wheelchair Without Step Tubes

**⚠ WARNING**

**When lowering the front casters of the wheelchair, DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.**

Roll the wheelchair backward and slowly lower the wheelchair in one continuous movement. Turn the anti-tippers so the anti-tip wheels are facing down.

# Stairways

**⚠ WARNING**

**ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced IMMEDIATELY.**

**DO NOT attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.**

**ALWAYS check hand grips for looseness before using the wheelchair. If loose and/or worn, replace IMMEDIATELY.**

**⚠ WARNING**

**Extreme caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two assistants and making thorough preparations. Make sure to use only secure, non-detachable parts for hand-held supports.**

*NOTE: For this procedure, refer to FIGURE 2.5.*

Follow this procedure for moving the wheelchair between floors when an elevator is not available:

1. If necessary, rotate the anti-tippers so the wheels are facing up.
2. After the wheelchair has been tilted back to the balance point, one assistant (in the rear) backs the wheelchair up against the first step, while securely grasping a non-removable (non-detachable) part of the wheelchair for leverage.
3. The second assistant, with a firm hold on a non-detachable part of the framework, lifts the wheelchair up and over the stair and steadies the wheelchair as the first assistant places one foot on the next stair and repeats STEP 1.

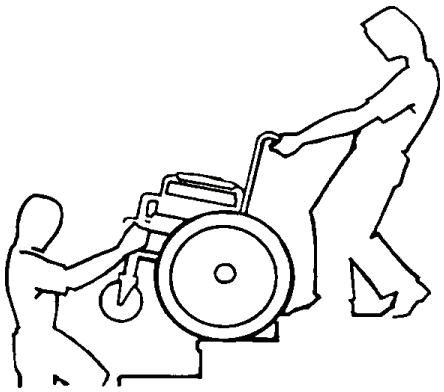


**FIGURE 2.5** Stairways

4. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.
5. If necessary, rotate the anti-tippers so the wheels are facing down.

# Escalators

**⚠ WARNING**

**DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.**

# Transferring To and From Other Seats

**⚠ WARNING**

**Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. Also be certain the wheel locks are engaged to help prevent the wheels from moving.**

**Wheelchairs with adjustable height armrests only: Adjust armrests to lowest position prior to transferring into or out of wheelchair - otherwise injury or damage may occur.**

**CAUTION**

**When transferring, position yourself as far back as possible in the seat. This will help prevent damaged upholstery and the possibility of the wheelchair tipping forward.**

*NOTE: For this procedure, refer to FIGURE 2.6.*

*NOTE: This activity may be performed independently provided you have adequate mobility and upper body strength.*

Position the wheelchair as close as possible alongside the seat to which you are transferring, with the front casters pointing parallel to it. Remove or flip up the armrest. Engage wheel locks. Swing away or remove front rigging. Shift body weight into seat with transfer.

During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

**FIGURE 2.6** Transferring To and From Other Seats

# Unfolding and Folding Wheelchair

**⚠ WARNING**

**ALWAYS keep hands and fingers clear of moving parts to avoid injury.**

**DO NOT place hand or fingers on the underside of the seat frame rail when opening or closing the wheelchair.**

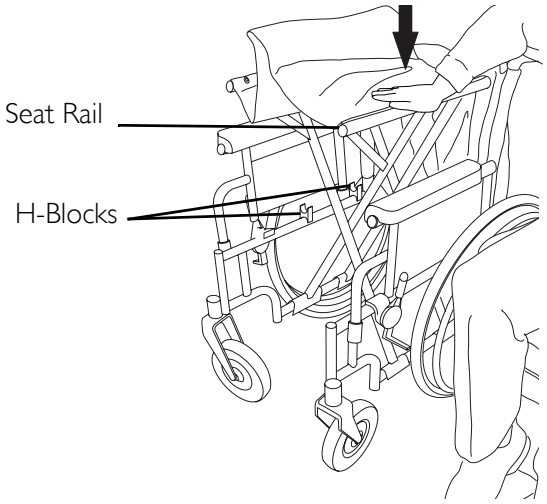
**DO NOT sit or transfer into the wheelchair unless it is fully open and the seat frame rails are fully seated into the side frame H-blocks.**

**Invacare recommends that a non-folding device be installed to keep the wheelchair from being folded when left unoccupied in a public place.**

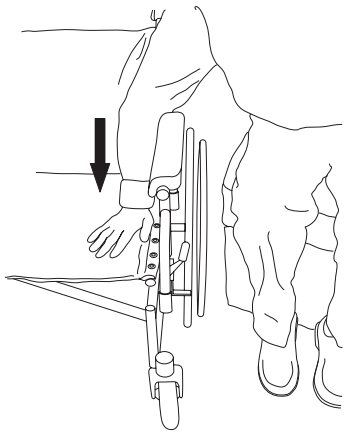
## Unfolding

*NOTE: For this procedure, refer to FIGURE 2.7.*

1. Tilt the wheelchair toward you (raising the opposite wheel and caster off the ground/floor).
2. Place your hand on the top of the seat rail closest to you where the seat upholstery is attached.
3. Point your fingers and thumb to the inside of the wheelchair.
4. Press downward on the top of the seat rail until the wheelchair is fully open and the seat rails are fully seated in the H-blocks.
5. Engage both wheel locks, open the footrest/legrest for clearance and transfer into the wheelchair. Refer to Transferring To and From Other Seats on page 18.




*NOTE: DO NOT wrap thumb or fingers under the seat rail. Point fingers and thumb to the inside of the wheelchair.*



*NOTE: Press down on the seat rail and the seat upholstery with the entire hand. DO NOT place any part of the hand under the seat rail.*

**FIGURE 2.7** Unfolding

## Folding Wheelchair

*NOTE: For this procedure, refer to FIGURE 2.8 on page 20.*

1. Swing footrest/legrest in locked position to the front of the wheelchair.
2. Pivot footplates upward to vertical position.
3. With both hands, grasp the middle of the seat upholstery at the front and back edge and lift up.

**CAUTION**

**DO NOT allow upholstery to hang between the cross braces.**

4. Continue to close the wheelchair by grasping the back cane furthest from you and pulling the armrest toward you.

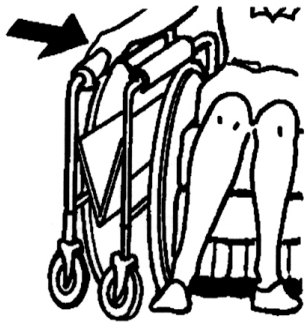


**FIGURE 2.8** Folding Wheelchair

*NOTE: If the wheelchair is equipped with carry straps, the wheelchair may be closed by pulling up on the straps.*

# SECTION 3—SAFETY INSPECTION/TROUBLESHOOTING

*NOTE: Every six months or as necessary, take your wheelchair to a qualified technician for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair MUST be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.*

## Safety Inspection Checklist

Initial adjustments should be made to suit your personal body structure and preference. Thereafter follow these maintenance procedures:

### Inspect/Adjust Initially

- ❑ Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Inspect for loose or missing hardware on frame and crossbraces.
- ❑ Inspect for rough/sharp edges on frame and crossbraces.
- ❑ Inspect for bent frame or crossbraces.
- ❑ Check that the wheel locks DO NOT interfere with tires when rolling.
- ❑ Check that the wheel lock pivot points are free of wear and looseness.
- ❑ Check that the wheel locks are easy to engage.
- ❑ Ensure that the wheel locks prevent the wheelchair from moving when engaged.
- ❑ Inspect the seat and back for rips and sagging.
- ❑ Inspect the seat and back for loose or broken hardware.
- ❑ Inspect the back cane hand grips for wear/looseness/deterioration.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Inspect tires for flat spots and wear.
- ❑ Check pneumatic tires for proper inflation.

**CAUTION**

**As with any vehicle, check the wheels and tires periodically for cracks and wear. Replace if damaged.**

- ❑ Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- ❑ Inspect rear wheels for cracked, bent or broken spokes.

- ❑ Adjust rear wheel bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure rear wheel bearings are clean and free of moisture.
- ❑ Ensure all spokes are uniformly tight.
- ❑ Inspect handrims for signs of rough edges or peeling.
- ❑ Inspect handrims for loose or missing hardware.
- ❑ Inspect axle assembly for proper tension by spinning caster. Caster should come to a gradual stop.
- ❑ Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Check headtube locknuts for tightness.
- ❑ Check headtube bearings for wear.
- ❑ Inspect casters for cracks and wear.
- ❑ Inspect front casters for cracked, bent or broken spokes.
- ❑ Clean upholstery and armrests.
- ❑ Check that all labels are present and legible. Replace if necessary.

**Inspect/Adjust Weekly**

- ❑ Inspect tires for flat spots and wear.
- ❑ Check pneumatic tires for proper inflation.
- ❑ Inspect rear wheels for cracked, bent or broken spokes.
- ❑ Ensure all spokes are uniformly tight.
- ❑ Inspect axle assembly for proper tension by spinning caster. Caster should come to a gradual stop.
- ❑ Check headtube locknuts for tightness.
- ❑ Check headtube bearings for wear.
- ❑ Inspect casters for cracks and wear.
- ❑ Inspect front casters for cracked, bent or broken spokes.

**Inspect/Adjust Monthly**

- ❑ Check that the wheel locks DO NOT interfere with tires when rolling.
- ❑ Check that the wheel lock pivot points are free of wear and looseness.
- ❑ Inspect seat and back for loose or broken hardware.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Inspect back cane hand grips for wear/looseness/deterioration.

- ❑ Adjust rear wheel bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure rear wheel bearings are clean and free of moisture.
- ❑ Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.

**Inspect/Adjust Periodically**

- ❑ Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Inspect frame and crossbraces for loose or missing hardware.
- ❑ Inspect for bent frame or crossbraces.
- ❑ Inspect for rough/sharp edges on frame and crossbraces.
- ❑ Ensure that the casters are free of debris.
- ❑ Check that wheel locks are easy to engage.
- ❑ Inspect seat and backs for rips and sagging.
- ❑ Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- ❑ Inspect handrims for signs of rough edges or peeling.
- ❑ Inspect handrims for loose or missing hardware.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Clean upholstery and armrests.
- ❑ Check that all labels are present and legible. Replace if necessary.

# Troubleshooting

| Chair Veers Right/ Left | Chair 3 Wheels | Sluggish Turn or Performance | Casters Flutter | Squeaks and Rattles | Looseness in Chair | Solutions |
|---|---|---|---|---|---|---|
| X | X | X | X | | | Check tires for correct and equal pressure |
| | | X | X | X | X | Check for loose nuts and bolts. |
| X | X | | X | | | Check caster headtube angle. |
| X | X | | | | | Check that rear wheels are equally spaced away from seat frame. |

# Maintenance

## Maintenance Safety Precautions

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may result.**

**CAUTION**

**DO NOT overtighten hardware attaching to the frame. This could cause damage to the frame tubing.**

## Suggested Maintenance Procedures

1. Before using your wheelchair, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.

**CAUTION**

**As with any vehicle, the rear wheels, casters and tires should be checked periodically for cracks and wear, and should be replaced if damaged.**

2. The rear wheels, casters and tires should be checked periodically for cracks and wear, and should be replaced by a qualified technician if damaged.

*NOTE: Tire wear is excessive if:*

- *Pneumatic Tires - there is missing tread or the tires are bald.*
- *Urethane Tires - there are cuts, surface defects or the tires are loose on the rims.*
- *Rubber Tires - 30% or more of the tire has worn away.*

*NOTE: Invacare recommends that tires and casters be replaced every five years.*

3. Periodically adjust wheel locks in correlation to tire wear. Refer to Adjusting Patient Operated Wheel Locks on page 45.
4. Periodically check handrims to ensure they are secured to the rear wheels. If loose, have them tightened by a qualified technician.
5. Periodically check caster and rear wheel bearings to make sure they are clean and free from moisture. Use a Teflon® lubricant if necessary.

**⚠ WARNING**

**When cleaning rear cane or hand grip areas use only a clean towel lightly dampened with cool water. Verify that grips are dry prior to use. Use of soap or ammonia based cleaning solutions will result in the hand grips sliding off the cane assembly. Failure to observe this warning may result in injury to the user or bystanders.**

6. Hand grips should be checked monthly for wear/looseness/deterioration. Clean if desired. Replace if looseness or deterioration is found.
7. Check upholstery for sagging, rips or tears.
8. Replace any labels that are missing, worn, or torn. Refer to Label Location on page 7 for a listing of labels and their locations.

# SECTION 4—FRONT RIGGINGS

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Installing/Removing Front Riggings

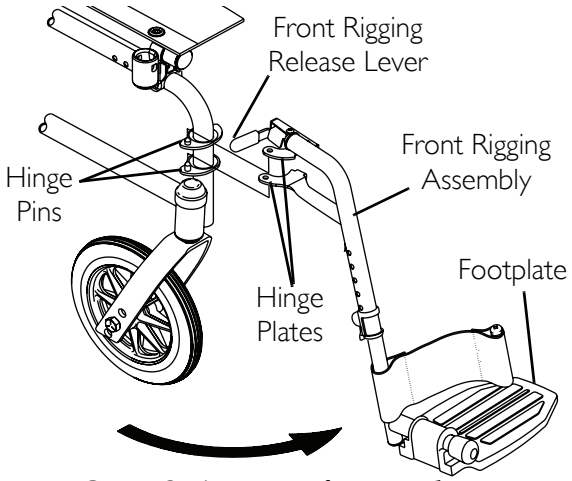
*NOTE: For this procedure, refer to FIGURE 4.1.*

### Installing

1. Turn the front rigging assembly to the side (open front rigging is perpendicular to wheelchair).
2. Install the hinge plates on the front rigging assembly onto the hinge pins on the wheelchair frame.
3. Push the front rigging assembly towards the inside of the wheelchair until it locks into place.

*NOTE: The footplate will be on the inside of the wheelchair when locked in place.*

4. Repeat this procedure for the other front rigging assembly.
5. To release the front rigging, push the front rigging release lever inward, rotate front rigging outward.




*NOTE: Swingaway footrest shown.*

**FIGURE 4.1** Installing/Removing Front Riggings

### Removing

1. Push the front rigging release lever inward
2. Rotate swingaway front rigging assembly outward.
3. Lift the swingaway front rigging assembly off the hinge pins.

# Adjusting Footplate Height

## Spring Button Height

*NOTE: For this procedure, refer to FIGURE 4.2.*

*NOTE: This procedure applies to the swingaway front riggings and swingaway elevating legrest.*

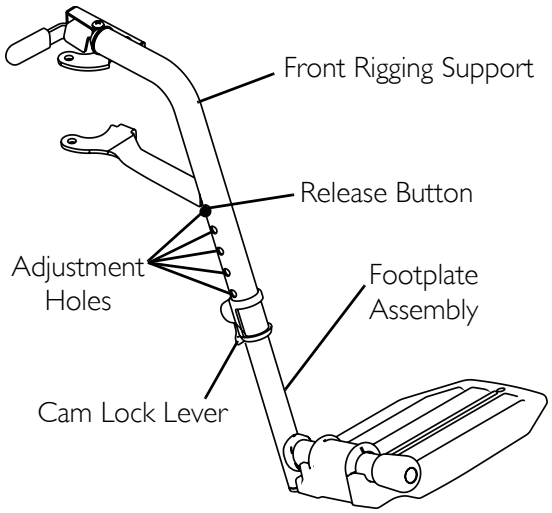
1. Remove the front rigging assembly. Refer to Installing/Removing Front Riggings on page 26.

*NOTE: Lay the front rigging assembly on a flat surface to simplify this procedure.*

2. Pull the cam lock lever up to unlocked position.

*NOTE: The elevating legrest has two sets of release buttons, one set above the other. Each set will be visible one at a time allowing finer footplate height adjustment.*

3. Push in the release buttons and reposition the footplate assembly to the desired height.
4. Ensure that the release buttons fully protrude from holes on both sides of the front rigging support.
5. Rotate cam lock lever down to locked position.
6. Repeat this procedure for the other footplate, if necessary.




*NOTE: Swingaway footrest shown.*

**FIGURE 4.2** Spring Button Height

7. Reinstall the swingaway front rigging assembly. Refer to Installing/Removing Front Riggings on page 26.

## Bolt-In-Place Height

*NOTE: For this procedure, refer to FIGURE 4.3 on page 28.*

*NOTE: This procedure applies to the swingaway footrests and swingaway elevating legrest.*

1. Remove the swingaway front rigging. Refer to Installing/Removing Front Riggings on page 26.

*NOTE: Lay the front rigging assembly on a flat surface to simplify this procedure.*

2. Pull the cam lock lever up to the unlocked position.
3. Using a screw driver to hold the threaded rivet in position, remove the button head screw from the threaded rivet.
4. Remove the threaded rivet and button head screw securing the footplate assembly to the front rigging support.

5. Adjust the footplate assembly height by aligning the desired adjustment holes in the upper front rigging support and lower footplate assembly.
6. From the outside of the swingaway front rigging, insert the threaded rivet through both the front rigging support and the footplate assembly.
7. From the inside of the swingaway front rigging, insert the button head screw through the appropriate adjustment hole and thread into the threaded rivet.
8. Using a screwdriver to hold the threaded rivet in position, securely tighten the button head screw. Torque to 32 in-lbs.
9. Rotate cam lock lever down to locked position.
10. Repeat STEPS 1-9 to adjust the remaining footrest.

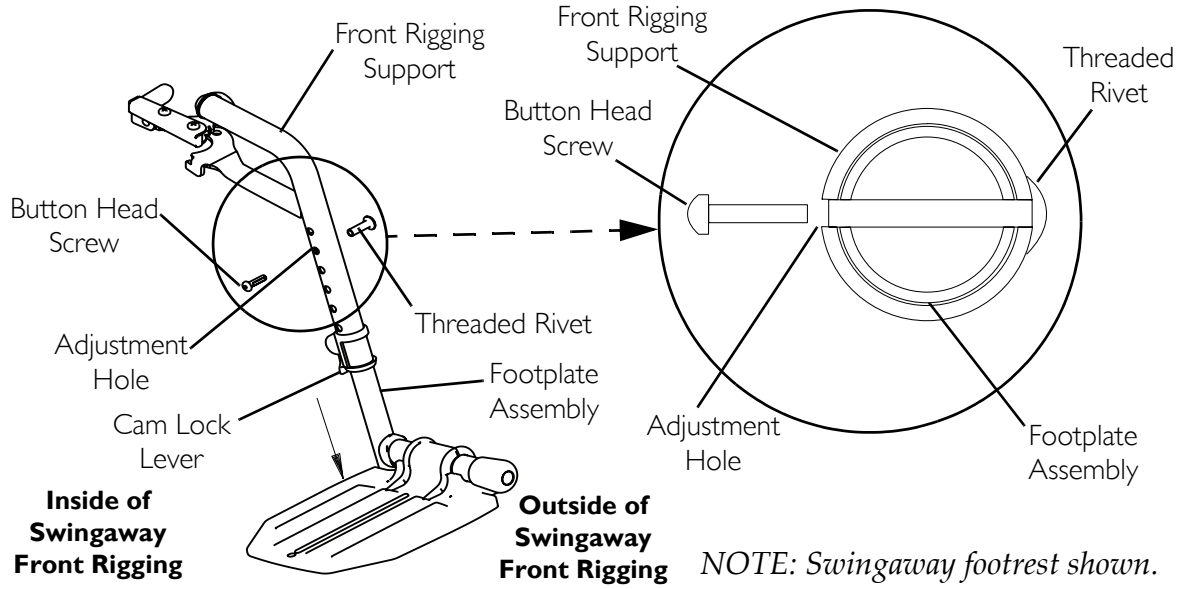



**FIGURE 4.3** Bolt-In-Place Height

# Raising/Lowering Elevating Legrest Assembly

## ⚠ WARNING

**Ensure hands and fingers are clear of elevating legrest mechanism before pushing release lever to lower the elevating legrest. Otherwise injury may occur due to pinch points.**

**The wheelchair user's leg MUST be supported by an assistant before attempting to lower legrest.**

*NOTE: For this procedure, refer to FIGURE 4.4 on page 29.*

1. To raise the elevating legrest, the assistant should hold the support tube and raise the elevating legrest until the desired height is obtained.
2. To lower the elevating legrest, perform the following:
   A. Support user leg with one hand.
   B. Push release lever downward with other hand.
   C. Gently, lower user leg down and rest against the legrest.

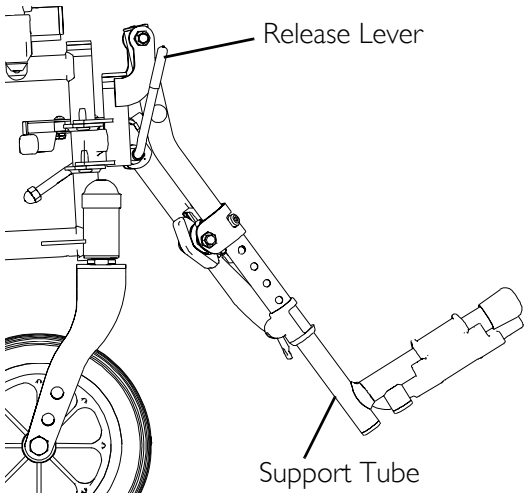



**FIGURE 4.4** Raising/Lowering Elevating Legrest Assembly

# Installing H-Strap/Calf Strap

*NOTE: For this procedure, refer to FIGURE 4.5.*

1. Remove H-strap/calf strap from packaged container if not already secured to the footrest.
2. Secure one side of the H-strap/calf strap around each footrest.

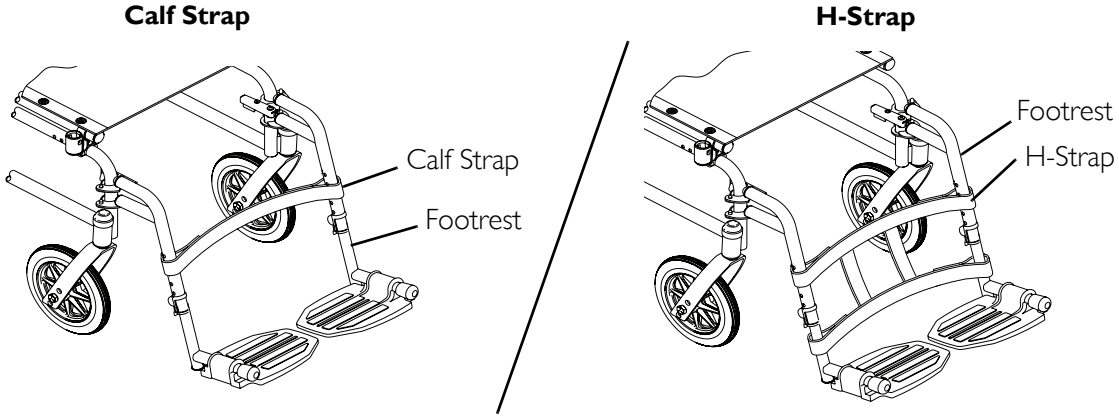



**FIGURE 4.5** Installing H-Strap/Calf Strap

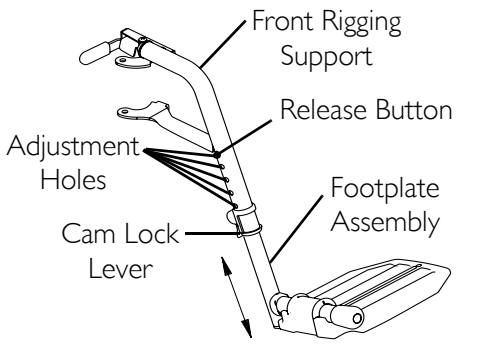
# Replacing Heel Loop

*NOTE: For this procedure, refer to FIGURE 4.6 on page 31.*

1. Pull the cam lock lever up to unlocked position.
2. Perform one of the following as shown in Detail "A".
   - Footplates with Spring Buttons: Push in the release buttons and remove the footplate assembly from the front rigging support.
   - Bolt-In-Place Footplates:
     i. Using a screw driver to hold the threaded rivet in position, remove the button head screw from the threaded rivet.
     ii. Remove the threaded rivet and button head screw securing the footplate assembly to the front rigging support.
3. Remove the mounting screw, spacer and locknut that secure the heel loop to the footplate.
4. Remove existing heel loop from slide tube.
5. Install new heel loop onto slide tube.
6. Install the mounting screw, spacer and locknut to secure the heel loop to the footplate. Tighten until the spacer is secure.
7. Insert the lower footrest assembly into the upper footrest assembly to desired height.
8. Perform one of the following as shown in Detail "A":
   - Footplates With Spring Buttons: Ensure that the release buttons fully protrude from holes on both sides of the upper footrest support.
   - Bolt-In-Place Footplates:
     i. From the outside of the swingaway front rigging, insert the threaded rivet through both the front rigging support and the footplate assembly.
     ii. From the inside of the swingaway front rigging, insert the button head screw through the appropriate adjustment hole and thread into the threaded rivet.
     iii. Using a screwdriver to hold the threaded rivet in position, securely tighten the button head screw. Torque to 32 in-lbs.
9. Rotate cam lock lever down to locked position.

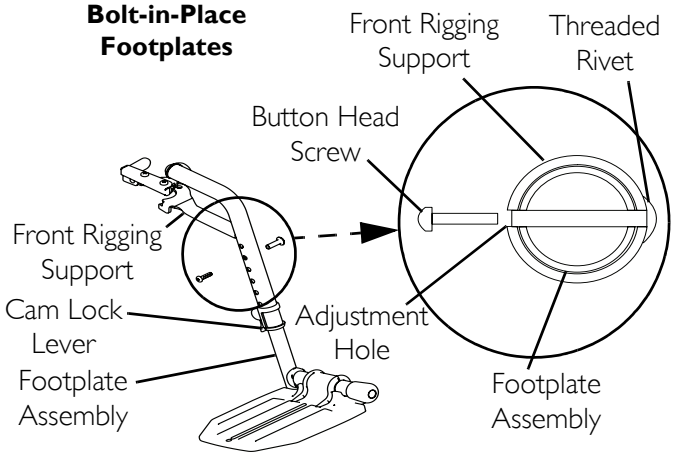
**DETAIL "A"**

**Footplates with Spring Buttons**




*NOTE: Swingaway footrest shown.*

**Bolt-in-Place Footplates**




**Inside of Swingaway Front Rigging**

*NOTE: Swingaway footrest shown.*

**Outside of Swingaway Front Rigging**

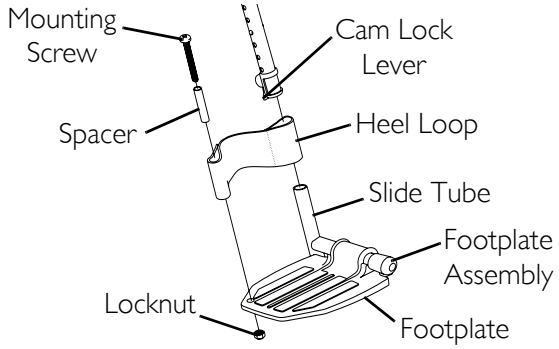



**FIGURE 4.6** Replacing Heel Loop

# SECTION 5—ARMS

*NOTE: Tracer IV wheelchairs are equipped with fixed height armrests as standard equipment. Adjustable armrests are available on Tracer IV wheelchairs as an option.*

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Adjusting Armrest Height

**⚠ WARNING**

**Make sure the height adjustment lever is in the locked position before using the wheelchair.**

*NOTE: For this procedure, refer to FIGURE 5.1.*

1. Unlock the armrest by flipping the height adjustment lever on the top front of the armrest to the up (horizontal) position.
2. Adjust armrest to one of five positions.

*NOTE: Height adjustment lever MUST be in the unlocked position when placing armrest into the arm assembly.*

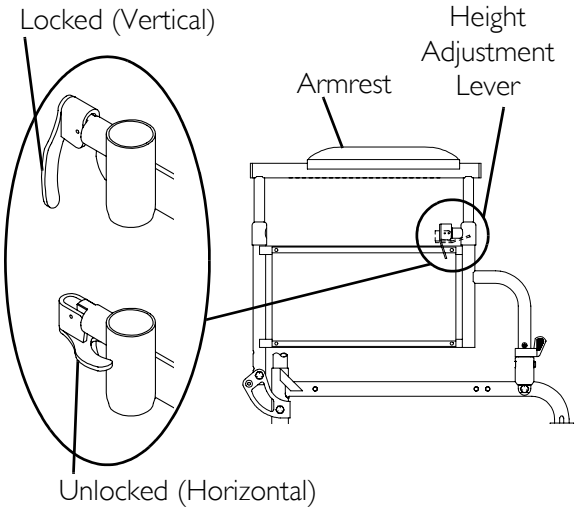



**FIGURE 5.1** Adjusting Armrest Height

3. Lock the armrest by pressing the height adjustment lever into the down (vertical) position when the desired armrest height is achieved.
4. Repeat STEPS 1-3 for other armrest.

## Removing/Installing Armrests

**⚠ WARNING**

**Make sure the armrest release lever is in the locked position before using the wheelchair.**

*NOTE: For this procedure, refer to FIGURE 5.2 on page 33.*

*NOTE: This procedure applies to wheelchairs with removable arm only.*

## Removing Armrest

1. Push down on armrest to ensure it is fully seated in front and rear sockets.

*NOTE: STEP 1 prevents the release buttons from hanging up on the sockets during removal.*

2. Unlock the rear armrest by rotating the armrest release lever towards the inside of the wheelchair.
3. Press in the armrest release button at the front of the armrest.
4. While pressing in the armrest release button, remove the armrest from the arm sockets by pulling straight up.

## Installing Armrest

*NOTE: Rear armrest release lever MUST be in the unlocked position when installing the armrest.*

1. Position the armrest just above the front and rear arm sockets.
2. Push arm down evenly at the front and rear until the front armrest release button snaps into the front arm socket.
3. Lock rear armrest by turning the armrest release lever towards the outside of the wheelchair.
4. Ensure armrest is locked securely in the arm sockets by gently lifting up. If not locked, repeat STEPS 1-3.

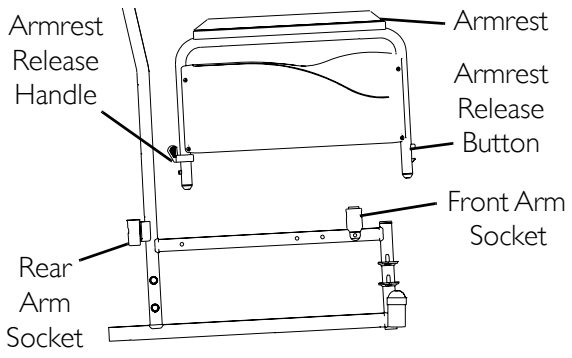



**FIGURE 5.2** Removing/Installing Armrests

# SECTION 6—SEAT AND BACK

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Replacing Back Upholstery

*NOTE: For this procedure, refer to FIGURE 6.1.*

1. Remove the eight mounting screws and washers that secure the existing back upholstery to the back canes.
2. Remove existing back upholstery from the back canes.
3. Securely tighten the new back upholstery to the back canes with the mounting screws and washers.

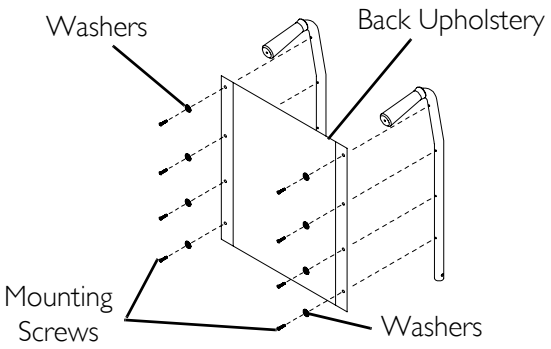



**FIGURE 6.1** Replacing Back Upholstery

## Replacing Seat Upholstery

*NOTE: For this procedure, refer to FIGURE 6.2.*

1. Perform one of the following:
   - 18-Inch Deep Seats: Remove the ten mounting screws and washers that secure the existing seat upholstery to the crossbraces.
   - 20-Inch Deep Seats: Remove the twelve mounting screws and washers that secure the existing seat upholstery to the crossbraces.
2. Remove the existing seat upholstery from the crossbraces.
3. Ensure positioning of seat positioning strap (if used). Refer to Installing the Seat Positioning Strap on page 51.
4. Install new seat upholstery by reversing STEPS 1-2.

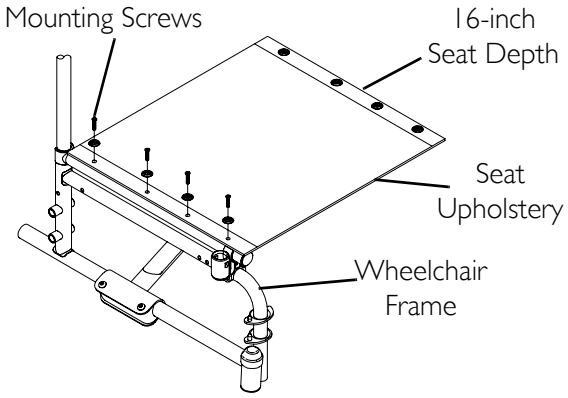



**FIGURE 6.2** Replacing Seat Upholstery

# Adjusting the Seat Width

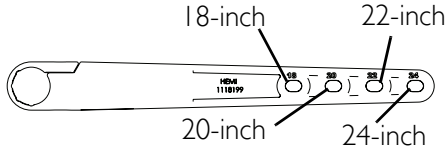
*NOTE: For this procedure, refer to FIGURE 6.3 on page 36.*

*NOTE: When adjusting the seat width of the wheelchair, the back and seat upholstery MUST be changed. If applicable, the headrest pillow and headrest upholstery MUST be changed as well.*

1. Remove the existing back and seat upholstery from the wheelchair. Refer to Replacing Back Upholstery and Replacing Seat Upholstery on page 34.
2. Remove the two button screws and locknuts that secure the two pivot links to the crossbraces.
3. Remove the four button screws, locknuts and two crossbrace saddles that secure the bottom of the crossbrace to the wheelchair frame. Repeat for other crossbrace.
4. Remove the two hex screws and locknuts that secure the two crossbraces together.

*NOTE: Note the orientation of the two hex screws and locknuts for assembling the new crossbraces.*

5. Assemble the two new crossbraces together with the existing two hex screws and locknuts. Securely tighten. Refer to FIGURE 6.3 for hardware orientation.
6. Determine the correct pivot link mounting hole to use with the desired seat width. Refer to following chart.

| SEAT WIDTH | PIVOT LINK |
|---|---|
| **18 - INCH**<br>**20 - INCH**<br>**22 - INCH**<br>**24 - INCH** |  |

7. Secure the pivot links to the crossbraces with the two button screws and locknuts. Securely tighten.

*NOTE: Position the rear crossbrace saddles on wheelchair frame using the washer on the underside of the wheelchair frame as a reference. Refer to FIGURE 6.3 for proper positioning of the crossbrace saddle.*

8. Reinstall the four button screws, locknuts and two crossbrace saddles that secure the bottom of the new crossbrace to the wheelchair frame. Repeat for opposite crossbrace. Securely tighten.
9. Install the new back and seat upholstery onto the wheelchair. Refer to Replacing Back Upholstery and Replacing Seat Upholstery on page 34.

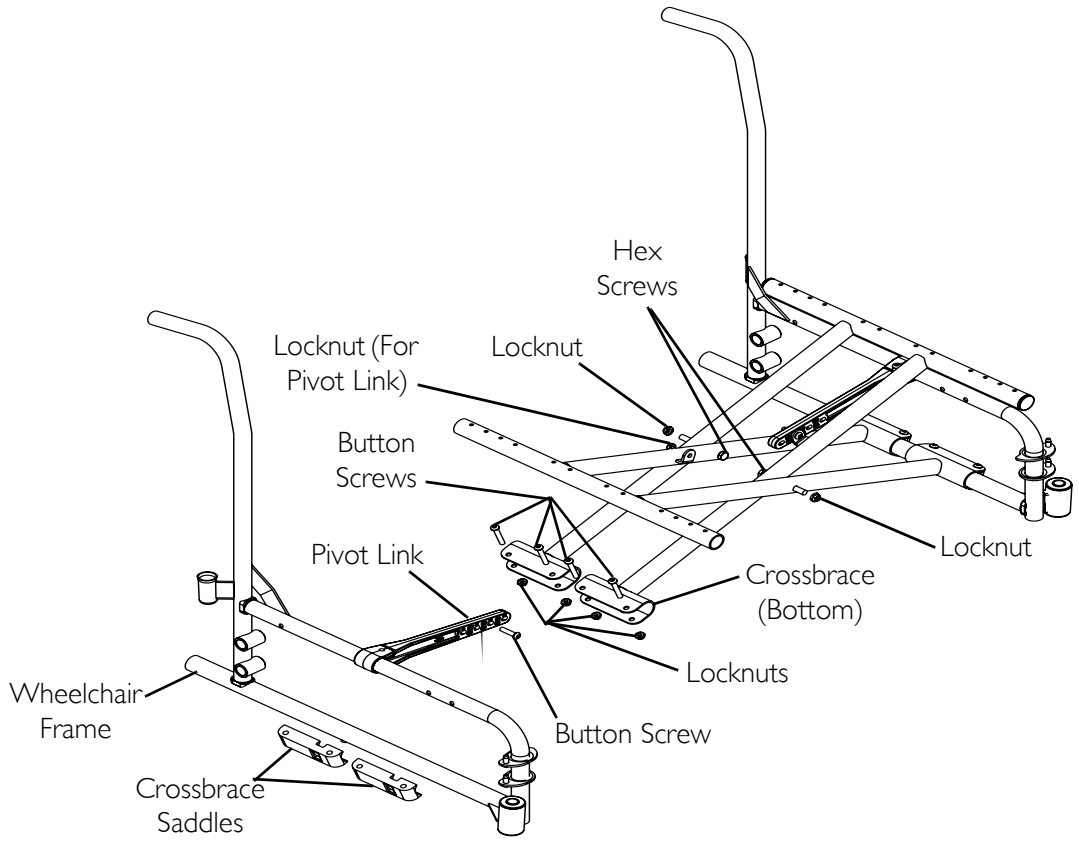



**FIGURE 6.3** Adjusting the Seat Width

# SECTION 7—REAR WHEELS

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Removing/Installing Rear Wheels

**⚠ WARNING**

**Only a qualified technician may change the seat-to-floor height.**

**Install only 24-inch rear wheels on the Tracer IV wheelchair. Otherwise, the wheelchair will become unstable and injury or damage may occur.**

**Make sure both rear wheels are installed into the same respective mounting hole before using the wheelchair. Otherwise, injury may occur.**

**For heavy duty wheel option (450 lb weight limit): 24-inch pneumatic flat-free insert rear wheels MUST be used.**

*NOTE: For this procedure, refer to FIGURE 7.1.*

1. Remove the hex screw, spacer, and locknut that secure the rear wheel to the wheelchair frame.
2. Repeat STEP 1 for the opposite rear wheel if desired.
3. To reinstall the rear wheel(s) onto the wheelchair, reverse STEPS 1-2 and torque locknut to 40 ft.-lbs.

*NOTE: Ensure the axle spacer is installed between the rear wheel and the wheelchair frame as shown in FIGURE 7.1.*

4. Adjust wheel locks. Refer to Using/Adjusting Patient Operated Wheel Locks on page 44.

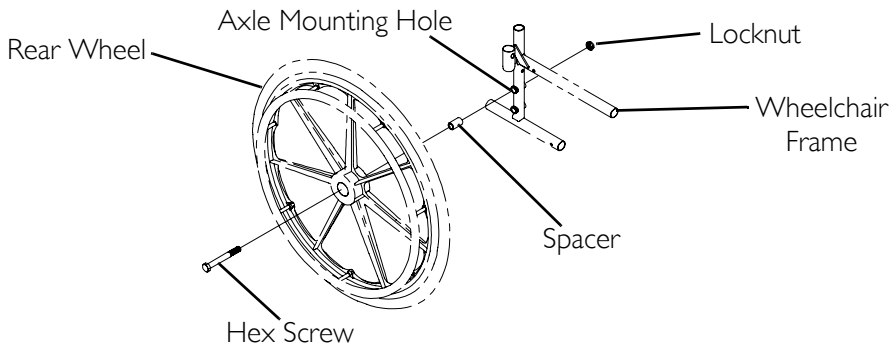



**FIGURE 7.1** Removing/Installing Rear Wheels

# Replacing Rear Wheel Handrim

**⚠ WARNING**

**DO NOT use composite handrims. Otherwise injury or damage may occur.**

*NOTE: For this procedure, refer to FIGURE 7.2.*

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 37.
2. Remove the mounting screws and washers (not shown) that secure the handrim to the rear wheel.
3. Remove the existing handrim.
4. Install the new handrim by reversing STEPS 1-3.
5. Reinstall rear wheel to the wheelchair. Refer to Removing/Installing Rear Wheels on page 37.
6. Repeat STEPS 1-5 for the opposite rear wheel if necessary.

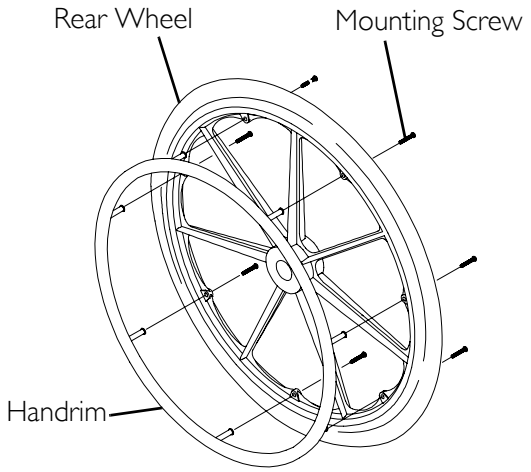



**FIGURE 7.2** Replacing Rear Wheel Handrim

# Replacing/Repairing Rear Wheel Tire

**⚠ WARNING**

**Replacement of rear wheel tire MUST be performed by a qualified technician.**

**CAUTION**

**As with any vehicle, check the wheels and tires periodically for cracks and wear. Replace if damaged.**

# SECTION 8—FRONT CASTERS

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Installing/Replacing Front Casters and Forks

**⚠ WARNING**

**Make sure both fork/caster assemblies are the same size before using the wheelchair. Otherwise injury may occur.**

*NOTE: For this procedure, refer to FIGURE 8.1.*

*NOTE: This procedure can be performed if replacing the exact same size front caster.*

1. Remove the dust cover.
2. Remove the locknut and nylon washer that secure the fork to the caster headtube.
3. Drop the fork assembly out of the caster headtube.
4. Remove the existing fork stem washer from the existing fork assembly.

*NOTE: If caster replacement is desired, refer to Replacing/Repairing Front Caster Tire/Tube on page 41.*

5. Install existing fork stem washer onto new fork assembly.
6. Slide the new fork assembly into the caster headtube.

*NOTE: Ensure caster is mounted in the same height position as the existing fork/caster assembly before installing.*

7. Reassemble by reversing STEPS 1-2.
8. Repeat STEPS 1-7 for the opposite fork assembly.

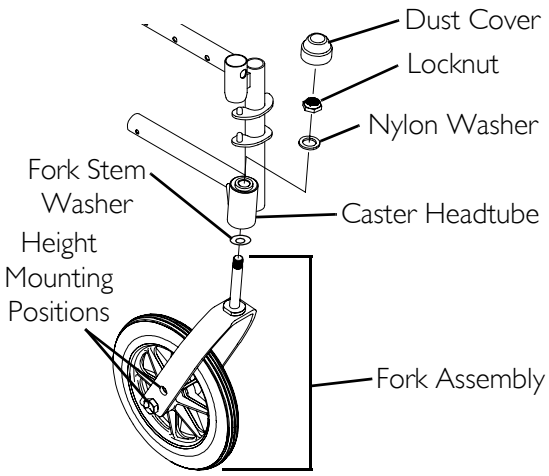



**FIGURE 8.1** Installing/Replacing Front Casters and Forks

9. Adjust the forks. Refer to Adjusting Forks on page 40.

# Adjusting Forks

1. To properly tighten caster journal system and guard against flutter, perform the following check:
   A. Tip back of wheelchair to floor.
   B. Pivot both forks and casters to top of their arc simultaneously.
   C. Let casters drop to bottom of arc (wheels should swing once to one-side, then IMMEDIATELY rest in a straight downward position).
   D. Adjust locknuts according to freedom of caster swing.
   E. Repeat STEPS C-D until wheels swing once to one-side, then IMMEDIATELY rest in a downward position.
2. Test wheelchair for maneuverability.
3. Readjust locknuts if necessary, and repeat STEPS 1-2 until correct.
4. Snap dust cover over the locknut and stem.

# Replacing Front Casters

**⚠ WARNING**

**Only 8-inch casters should be installed on the Tracer IV wheelchair. Otherwise, the wheelchair may become unstable and injury or damage may occur.**

**For Heavy Duty Wheel Option (450 lb weight limit): 8 x 1¾ inch semi-pneumatic front caster MUST be used.**

**Only a qualified technician may change the front caster mounting position or the seat-to-floor height.**

*NOTE: For this procedure, refer to FIGURE 8.2 on page 41.*

*NOTE: Note the caster mounting position on the fork assembly for proper installation of the new front caster.*

1. Remove the hex screw, washers and locknut that secure the front caster to the fork.

*NOTE: Washers are only used with 8-inch casters with precision bearings.*

2. To reinstall the new front caster onto the fork, reverse STEP 1.

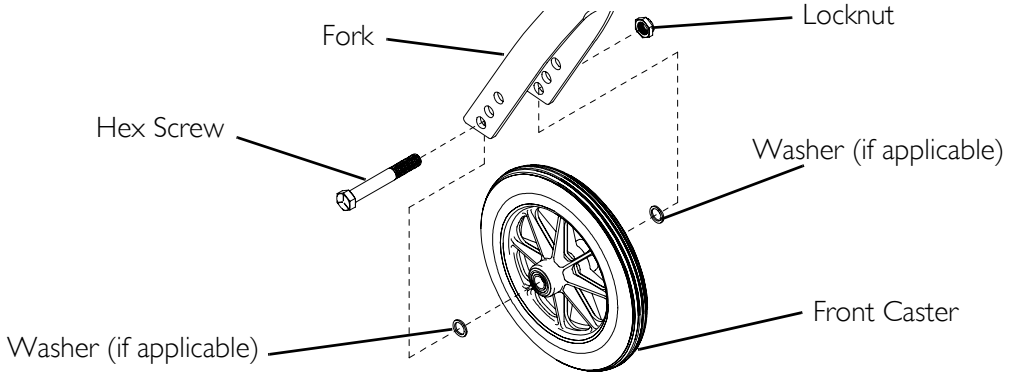



**FIGURE 8.2** Replacing Front Casters

# Replacing/Repairing Front Caster Tire/Tube

**⚠ WARNING**

**Replacement of front caster tire MUST be performed by a qualified technician.**

**CAUTION**

**As with any vehicle, check the wheels and tires periodically for cracks and wear. Replace if damaged.**

# SECTION 9—ANTI-TIPPERS/WHEEL LOCKS

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Installing/Adjusting Anti-tippers

**⚠ WARNING**

**Anti-tippers are specific to the different seat-to-floor angles and/or seat-to-floor heights. Refer to the chart in this section of the manual for correct usage and adjustment. If these requirements cannot be achieved, DO NOT use the wheelchair. Contact a qualified technician. Any changes to the seat-to-floor angle or seat-to-floor height may require different anti-tippers.**

**If so equipped, anti-tippers MUST be attached at all times. Inasmuch as the anti-tippers are an option for this wheelchair (You may order with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as a safeguard for the wheelchair user.**

**Anti-tippers MUST be fully engaged and release buttons fully protruding out of adjustment holes.**

**ALWAYS use anti-tippers. When outdoors on wet, soft ground or on gravel surfaces, anti tippers may not provide the same level of protection against tipover. Extra caution MUST be observed when traversing such surfaces.**

**Ensure both anti-tippers are adjusted to the same mounting hole.**

*NOTE: For this procedure, refer to FIGURE 9.1 on page 43.*

### Installing Anti-Tippers

*NOTE: To ensure the correct model anti-tipper is used refer to Detail "A" in FIGURE 9.1. Measurements for anti-tippers are approximate and are taken with the extension tube in the bottom hole position.*

| Wheelchair Model | Seat-to-Floor Height (in inches) | Anti-Tipper (in inches) | | | |
|---|---|---|---|---|---|
| | | Length | Height | Model | Part No. |
| TRACER IV | 17½ to 19½ | 13½ | 3¼ | 1360 | 1058836 |

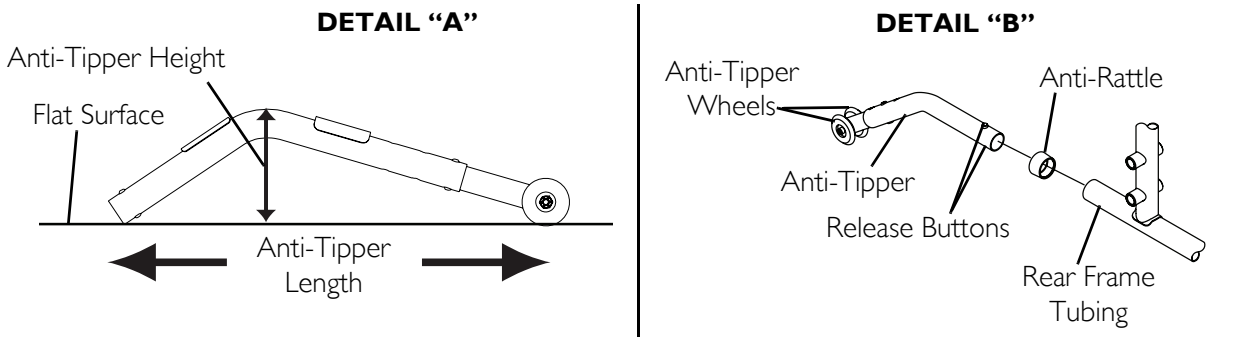



**FIGURE 9.1** Installing/Adjusting Anti-tippers - Anti-Tipper Length

1. Press the release buttons and insert the anti-tippers with the anti-tipper wheels pointing toward the ground/floor into the wheelchair frame tubing (Detail "B").
2. Ensure that the release button of the anti-tipper fully protrudes out of the hole in the bottom of the wheelchair frame tubing.
3. Place the wheelchair on a flat surface.
4. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.

*NOTE: A 1½ to 2-inch clearance between the bottom of the anti-tipper wheels and the ground/floor MUST be maintained at all times.*

5. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 1½ to 2-inches, adjust anti-tippers. Refer to Adjusting the Anti-Tippers on page 43.

## Adjusting the Anti-Tippers

*NOTE: For this procedure, refer to FIGURE 9.2 on page 44.*

*NOTE: A 1½ to 2-inch clearance between the bottom of the anti-tipper wheels and the ground/floor MUST be maintained at all times.*

1. Place the wheelchair on a flat surface.

*NOTE: If adjusting the anti-tippers on recliner models, ensure that the back canes are in the upright position before making adjustments.*

2. Press the release buttons on the wheeled portion of the anti-tipper and slide it up or down to the desired adjustment hole.
3. Check to make sure that the release buttons are fully engaged in adjustment holes.
4. Ensure both anti-tippers are adjusted to the same height.
5. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.

6. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 1½ to 2-inches, repeat STEPS 2-5 until the distance is 1½ to 2-inches.
7. If the 1½ to 2-inch distance cannot be achieved with the anti-tippers, a different model may be required. Contact an Invacare dealer or qualified technician.

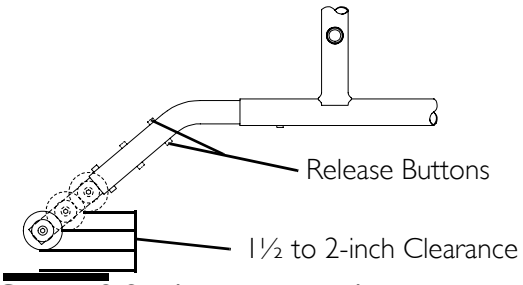



**FIGURE 9.2** Adjusting the Anti-Tippers

# Using/Adjusting Patient Operated Wheel Locks

## Using Patient Operated Wheel Locks

**⚠ WARNING**

**DO NOT attempt to stop a moving wheelchair with wheel locks. Wheel locks are not brakes.**

*NOTE: For this procedure, refer to FIGURE 9.3 on page 45.*

*NOTE: Position wheelchair on a flat, level surface to perform this procedure.*

1. Ensure the wheelchair is not moving before engaging the wheel locks.
2. Perform one of the following:
   - Push-to-Lock - To engage, push the wheel lock handle forward.
   - Pull-to-Lock - To engage, pull the wheel lock handle backward.
3. Disengage the wheel locks by reversing STEP 2.

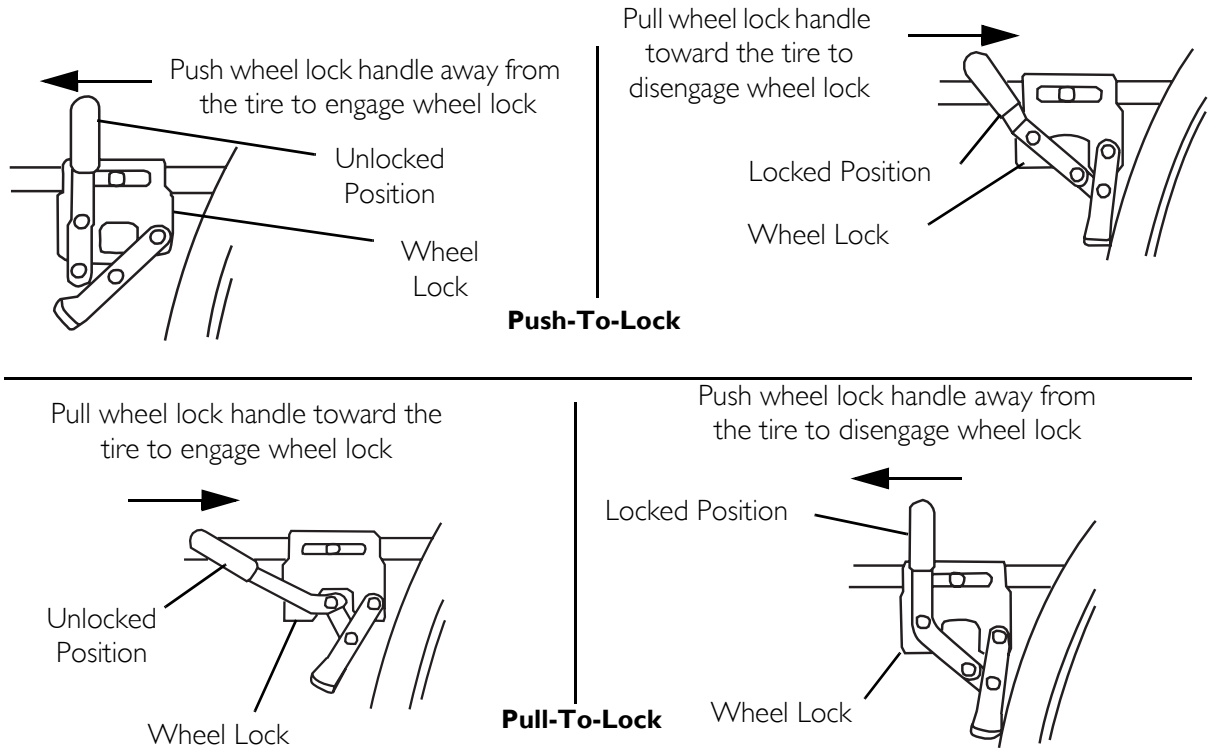

Push wheel lock handle away from the tire to engage wheel lock
Unlocked Position
Wheel Lock
Pull wheel lock handle toward the tire to disengage wheel lock
Locked Position
Wheel Lock
Push-To-Lock
Pull wheel lock handle toward the tire to engage wheel lock
Unlocked Position
Wheel Lock
Push wheel lock handle away from the tire to disengage wheel lock
Locked Position
Wheel Lock
Pull-To-Lock

**FIGURE 9.3** Using Patient Operated Wheel Locks

## Adjusting Patient Operated Wheel Locks

### ⚠ WARNING

**DO NOT attempt to stop a moving wheelchair with the wheel locks. Wheel locks are not brakes.**

*NOTE: For this procedure, refer to FIGURE 9.4 on page 46.*

*NOTE: If wheels are pneumatic, before adjusting the wheel lock assemblies, ensure that the tires are inflated to the recommended psi on the side wall of tire.*

1. Ensure the wheel lock is in the open (unlocked) position.
2. Loosen the bolt and locknut that secure the wheel lock assembly to the wheelchair frame.
3. Reposition the wheel lock so that when engaged, the wheel lock shoe embeds the tire 1/8-inch (3/16-inch for pneumatic tires) and holds the wheelchair.
4. Securely tighten the bolt and locknut securing the wheel lock to the wheelchair frame.
5. Engage the wheel lock.
6. Measure the distance the wheel lock is embedded into the tire as shown in Detail "A".

*NOTE: Any wheel lock adjustment should embed the wheel lock shoe at least 1/8-inch (3/16-inch for pneumatic tires) into the tire when engaged.*

7. Repeat the STEPS 1-6 until the wheel lock shoe embeds the tire 1/8-inch (3/16-inch for pneumatic tires) and holds the wheelchair.
8. If the measurement of 1/8-inch (3/16-inch for pneumatic tires) cannot be achieved, it may be necessary to install wheel lock shoe extensions. Refer to Installing Wheel Lock Shoe Extensions on page 46.
9. Repeat STEPS 1-8 for the opposite wheel lock.
10. Engage both wheel locks and ensure the occupied wheelchair is held in place when pushed.

**⚠ WARNING**

**If wheel locks DO NOT hold the occupied wheelchair in place, contact a qualified technician; otherwise injury or damage may occur.**

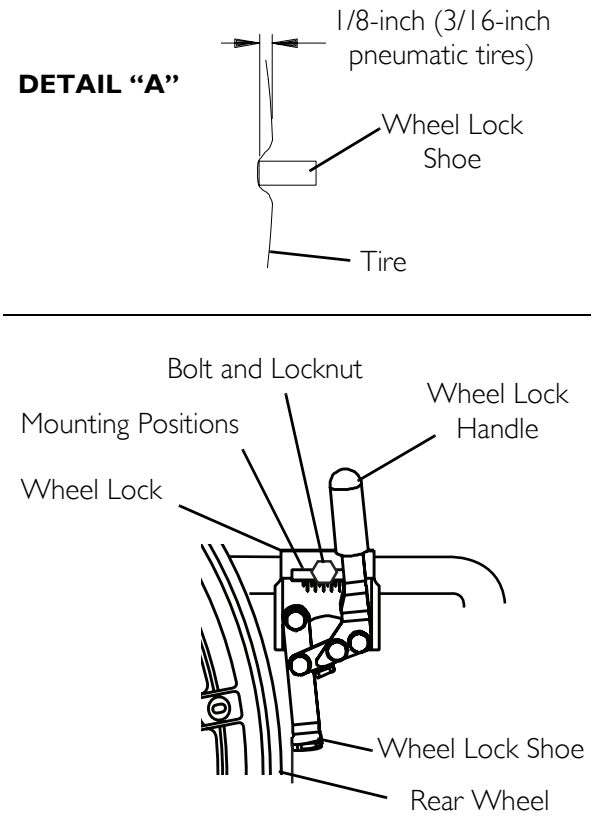



**FIGURE 9.4** Adjusting Patient Operated Wheel Locks

# Installing Wheel Lock Shoe Extensions

*NOTE: For this procedure, refer to FIGURE 9.5.*

1. Loosen the two set screws on the wheel lock shoe extension until the set screws DO NOT protrude into the slot.
2. Insert the wheel lock shoe into the slot in the shoe extension.

*NOTE: Ensure the pointed end of the wheel lock shoe extension is facing toward the rear wheel.*

3. Position the wheel lock shoe extension so the outside edge is flush with the end of the wheel lock shoe.
4. Securely tighten the two set screws to secure the wheel lock shoe extension to the wheel lock shoes.

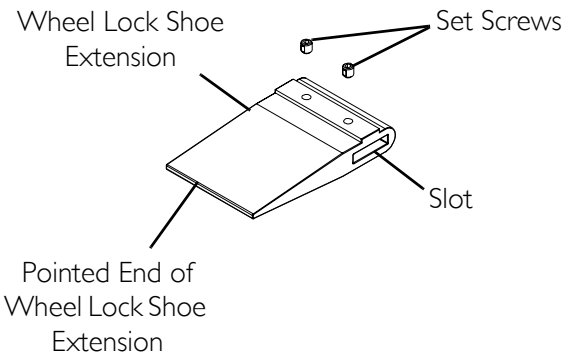



**FIGURE 9.5** Installing Wheel Lock Shoe Extensions

# SECTION 10—SEAT TO FLOOR HEIGHT

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Changing Seat-to-Floor Height

**⚠ WARNING**

**The size/position of the front casters, position of the rear wheels, use of anti-tipper model, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the five may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.**

**Seat-to-floor heights have specific positions depending on rear wheel position and front caster position. These adjustments MUST be performed by a qualified technician.**

**If changing the seat-to-floor height, the anti-tippers MUST be adjusted to maintain a 1½ to 2-inch ground clearance.**

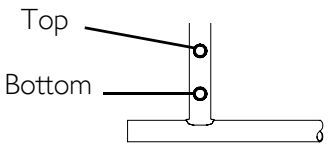
*NOTE: For this procedure, refer to FIGURE 10.1 on page 48.*

1. Refer to the chart in FIGURE 10.1 to determine mounting positions for front casters/forks and rear wheels for the desired obtainable seat-to-floor height:
2. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 37.
3. Remove the front casters from the forks. Refer to Replacing Front Casters on page 40 and Installing/Replacing Front Casters and Forks on page 39.
4. Reinstall the casters in the mounting positions indicated in the chart.
5. Reinstall the rear wheels onto the wheelchair in the mounting position indicated in the chart. Refer to Removing/Installing Rear Wheels on page 37.
6. Adjust anti-tippers according to new seat-to-floor height. Refer to Adjusting the Anti-Tippers on page 43.

**8-INCH FRONT CASTERS**

| SEAT-TO-FLOOR HEIGHT (IN INCHES) | FRONT CASTER MOUNTING POSITION | REAR WHEEL SIZE | REAR WHEEL MOUNTING POSITION |
|---|---|---|---|
| **17½** | Top | 24-inch | Top |
| **19½** | Bottom | 24-inch | Bottom |

**DETAIL "A" - REAR WHEEL MOUNTING POSITIONS-ADULT/HEMI FRAME STYLE**




**DETAIL "B" - 8-INCH FORK MOUNTING POSITIONS**

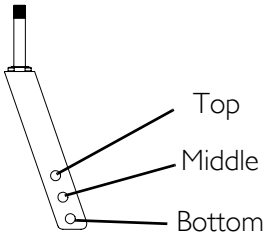



**FIGURE 10.1** Changing Seat-to-Floor Height

# SECTION 11—OPTIONS

**⚠ WARNING**

**After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.**

## Installing Carrying Pocket

*NOTE: For this procedure, refer to FIGURE 11.1.*

1. Determine the height required for the carrying pocket.
2. Remove the two back upholstery screws and two washers that correspond to the desired height.
3. Center pouch against back canes, determine and mark location for mounting holes on carrying pouch straps.
4. Punch holes in straps.
5. Fold excess strap ends under, mark mounting holes in second thickness of strap and punch mounting holes.
6. Fold strap ends under so the upholstery screw can be inserted through two thicknesses of strap.
7. Position the carrying pocket on the wheelchair frame.
8. Secure the carrying pocket to the wheelchair frame with the two washers and two back upholstery screws.

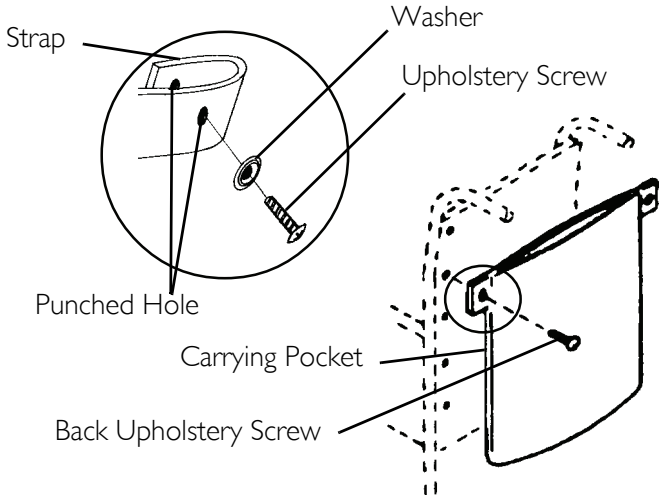



**FIGURE 11.1** Installing Carrying Pocket

# Installing Crutch and Cane Carrier

## ⚠ WARNING

**Check base weekly to ensure proper placement.**

**When loading the crutch/cane carrier, ensure items are securely placed into the base. Also ensure that there is no interference with folding the wheelchair, the rear wheels, or the swing-back arms.**

**Strap MUST be securely fastened while carrying items.**

**NEVER insert or remove items while wheelchair is moving.**

*NOTE: For this procedure, refer to FIGURE 11.2.*

1. Slide the clamp with the base attached over the end of the step tube of the wheelchair. Ensure the base is towards the inside of the wheelchair.
2. Position the base parallel to the step tube.

## CAUTION

**Base should be parallel to step tube to avoid bending spokes when folding the wheelchair.**

3. Securely tighten the locknut that secures the base to the step tube of the wheelchair.
4. Remove the upper back upholstery screw and washer.
5. Align the strap with the back upholstery screw mounting hole.
6. Reinstall the back upholstery screw and washer and secure the strap to the wheelchair.
7. The base cleans easily with any chrome or glass cleaner. The strap can be cleaned with mild soap and water.

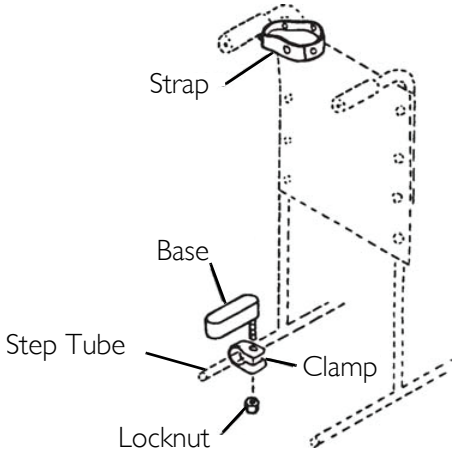



**FIGURE 11.2** Installing Crutch and Cane Carrier

# Installing the Seat Positioning Strap

**⚠ WARNING**

**ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced IMMEDIATELY.**

*NOTE: For this procedure, refer to FIGURE 11.3.*

1. Remove the bottom back upholstery screw from the wheelchair.
2. Position the seat positioning strap half between the back cane and back upholstery.
3. Secure the back upholstery and seat positioning strap to the wheelchair with the existing back upholstery screw.

*NOTE: The screw MUST go through the grommet in the seat positioning strap.*

4. Repeat STEPS 1-3 for the opposite side of the wheelchair.

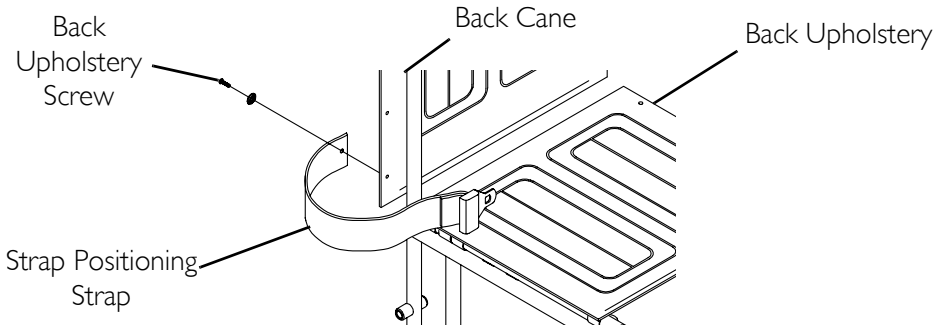



**FIGURE 11.3** Installing the Seat Positioning Strap

# LIMITED WARRANTY

**PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.**

**This warranty is extended only to the original purchaser who purchases this product when new and unused from Invacare or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person.**

**This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.**

**Invacare warrants the side frames and cross members of this product when purchased new and unused to be free from defects in materials and workmanship for a period of five (5) years from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants the upholstered materials (seat, back and armrests of the arm assembly) and remaining components of this product when purchased new and unused to be free from defects in materials and workmanship for a period of thirteen (13) months from date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. If within such warranty periods any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.**

**For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address at the bottom of this page. Provide dealer's name, address, the product model number, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.**

**LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO NORMAL WEAR AND TEAR OR FAILURE TO ADHERE TO THE PRODUCT INSTRUCTIONS.**

**THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.**

**SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSION AND LIMITATION MAY NOT BE APPLICABLE.**

**THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.**


INVACARE®

*Yes, you can.*®

**Invacare Corporation**

www.invacare.com

**USA**
One Invacare Way
Elyria, Ohio USA
44036-2125
800-333-6900

**Canada**
570 Matheson Blvd E Unit 8
Mississauga Ontario
L4Z 4G4 Canada
800-668-5324



All rights reserved. Trademarks are identified by ™ and ® . All trademarks are owned by or licensed to Invacare Corporation unless otherwise noted. Teflon is a registered trademark of DuPont.

© 2007 Invacare Corporation



Part No. 1110558

Rev E - 12/07